

Improve Knowledge, Beliefs and Behavior of Undergraduate Female Nursing Students in Al-Alzhar University toward Breast Self-Examination Practice

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Abstract

Breast cancer is a public health problem that is most common form of cancer among females in both developed and developing world. The Health Belief Model (HBM) has been used as a theoretical framework to study Breast Self-Examination and other breast cancer detection behaviors. **The aim of this study:** Was to improve knowledge, beliefs and behavior of undergraduate female nursing students in Al-Alzhar University toward breast self examination practice. **Design:** A quasi-experimental design was used in this study. **Setting:** The study was conducted in Health Technical Institute for female students at Al-Alzhar University for 113 female student nurse. **Tools:** data was collected using self administered questionnaires prepared by researchers and Health Belief Model Scale Data. **Results:** The participants in the study showed more deficiency on screening knowledge, and poor practice of BSE at pre education. Also, the results of this study highlight the positive impact of the educational training on nursing students' breast cancer and breast self exam knowledge, practice and health beliefs which there was statistically significant differences were found between students' pretest and posttest BSE Knowledge, practice and beliefs. **Conclusion and recommendation:** the results of this study concluded that this program could be instrumental in increasing nursing students' perception of susceptibility may serve to improve not only their own health status but may empower them to teach women about the importance of early diagnosis and to seek early medical advice. This study emphasizes that the need to teach nursing students breast cancer awareness and early detection of breast cancer in their undergraduate courses. In addition, the provision of regular interventions is necessary to increase and build up the confidence and skills of nursing students in teaching preventive health behaviors including BSE to society and other students as colleagues.

Keywords: Breast Self Exam (BSE), Breast Cancer, Nursing Students, Health Beliefs Model

Introduction

Breast cancer is a public health problem that is most common form of cancer among females in both developed and developing world, and is increasing particularly in developing countries where the majority of cases are diagnosed in late stages. The incidence of breast cancer is increasing in the developing world due to increase life expectancy, increase urbanization and adoption of western lifestyles (WHO, 2013). Additionally, American Cancer Society, (2009) added that there is variety of interrelated factors causes cancer such as genetic factors, hormones, the environment, sociobiology and physiological factors. In 2008, breast cancer caused 458,503 deaths worldwide and is more than 100 times more common in women than men ((Abdulla, 2011). Other reports indicate that cancer of the breast is the commonest malignancy in females affecting more than a million females annually (Gwarzo, et al., 2009). It also comprises 16% of all female cancers (WHO, 2010).

In Egypt, breast cancer accounts for 35.1% of the cases of cancer and is the most prevalent cancer among Egyptian women; the median age at diagnosis for breast cancer is ten years younger than in the United States and Europe (Abdulla, 2011). According to World Health Organization report there were about 519,000 women who die from breast cancer annually and more new cases are found, which is estimated to be one million of women develop breast cancer each year approximately (WHO, 2013).

Challenges for Egyptian doctors treating breast cancer include late detection and the lack of awareness about the disease. According to the National Cancer Institute in Cairo, many Egyptian women fail to seek medical treatment or preventive screening, making it more difficult to treat cancers and by the time breast cancer is detected in advanced stage. To combat these challenges, several active foundations and programs are working to raise awareness of breast cancer (Abdulla, 2011).

Adolescence is a transition period between childhood and adulthood, during this time, significant changes occur in the body. These groups of females are just beginning to learn about their bodies. Also this period is a time of rapid change that provides teaching opportunities for shaping health behaviors into adulthood. Health behaviors such as (Breast Self Examination) BSE can help empower women to take some control and responsibility over their health promotion (Karayurt, et al., 2009). Teaching BSE and issues about breast cancer as early as possible will go a long way to encourage positive behavior towards BSE, create a breast-awareness

and can lead to seeking regular professional breast examination/screenings later in life (Isara & Ojedokun, 2011). **BSE is an easy-to-apply, economical, safe, non-invasive procedure; and it is** one of the important and effective steps for identifying breast tumors at an early stage (Beydag and Yurugen, 2010).

The community health nurse plays an important role in teaching Breast Self- Examination (BSE) and they are in an appropriate position to teach breast cancer awareness with no extra cost. A females who was advised about BSE by health care providers demonstrated greater knowledge, confidence and was likely to practice it routinely (Abu-Salem et al, 2007; Hacihasanoğlu & G züm, 2008).

The Health Belief Model (HBM) has been used as a theoretical framework to study Breast Self- Examination and other breast cancer detection behaviors. Based on the HBM, health-related behavior is influenced by a person's perception of the threat posed by a health problem and by the value associated with his or her action to reduce that threat. Which individuals are more likely to engage in preventive health behaviors if they perceive themselves to be susceptible to a certain disease / illness (perceived susceptibility), perceive the condition to have potentially serious consequences (perceived severity), believe that a course of action will produce positive outcomes (perceived benefits), and perceive that barriers to taking actions are outweighed by the benefits. In addition, the model assessed perceived self efficacy that reflects the perception of patients about their abilities to perform BSE correctly (Wu, et al., 2005).

The researchers assume that nurse female students in technical institute may have some information about the problem, but they didn't know about BSE, and if they know; they don't practice it regularly. With this background, the present study was designed to improve knowledge, beliefs and behavior of undergraduate female nursing students in Al-Alzhar University toward breast self examination practice through the following objective:

Investigate knowledge, beliefs and behavior of undergraduate female nursing students in Al-Alzhar University toward breast cancer and breast self examination practice

Introduce educational program training and measure how it influences knowledge, beliefs and behavior of female nurse about breast self examination

Hypothesis:

- There is defect of nursing students' knowledge, practice and beliefs about breast self examination.
- The intervention program for nursing students about BSE will be improved their knowledge, practice and beliefs.

Subjects and Methods

Research design: A quasi-experimental design was used in this study to examine the study group knowledge, beliefs and practice of breast self-examination before and after the education program.

Research Setting: The study was conducted in Health Technical Institute for female students at Al-Alzhar University, Nasser City, Cairo, Egypt

Subjects:

The study population consisted of 153 nurse students who learn at Health Technical Institute. A total of 113 agreed to participate in the study (74.9%response rate). Data were collected from the participants who had no personal history of breast cancer and were willing to participate in the study.

Tools of data collection:

In this study, data was collected using self administered questionnaires prepared by researchers and Health Belief Model Scale

Based on a literature review, a self designed form was used to assess relevant socio demographic variables as age, parent education level, and residence, and history of breast cancer among family.

- **Pre and post-test questionnaires** to examine knowledge and practice of the respondents about breast cancer, and breast self examination, in addition to the source of their knowledge about BSE, and the preferred method of BSE
- **Health beliefs model were assessed** using the Champions revised Health belief Model Scale (Champion, 1993). The instrument was developed and tested for American women and then it was revised by (Champion, 1999). This scale was adopted and translated in Arabic language by a panel of experts and interpreters to translate the items from the source language to the target language.

The HBMS consists of 63 items that were clustered into six subscales: perceived susceptibility (six items), perceived severity (twelve items), barriers to BSE (fourteen items), benefits of BSE (eleven items), cues to action (eight items), and self- efficacy (twelve items). The scale items have a five-point Likert format with the following coding: strongly disagree (1); disagree (2); neutral (3); agree (4); and strongly agree (5). Higher scores indicate stronger feelings related to that construct. All subscales are positively related to BSE practice except for

barriers which are negatively associated.

Methods of data collection

Pilot study: A pilot study was carried out on ten students who were included then within the total study sample. The aim of the pilot study is testing the clarity of the tool and to estimate the time required to fill the questionnaire. Based on the results of the pilot study, the necessary modification was done.

Ethical Considerations: Approval was obtained from the director of Health technical institutes. Formal consent was obtained from nurse students verbally before being involved in the study after explanation of the nature and purpose of study and those who accepted to participate in the study were included. The students were informed that they had the right to withdraw from participation, and the results would be confidential, be used only for the purpose of the study and would not influence their grades in the institute.

Technique of data collection:

The pre-test questionnaire distributed to all nursing students who willing to participate in the study in their lecture rooms, after filling the questionnaire the students were divided into four groups according their name list. Average 28-29 participants were recruited for each time. Data collection started at the assessment phase and lasted from beginning of November to end of December 2013. The training program was designed based on analysis of the collected data and implemented by using the pre constructed tools. The objective of the program were established and guided by the previously determined educational needs in order to raise awareness of the study sample regarding breast cancer and breast self exam and to demonstrate greater proficiency in BSE practice. Accordingly, each group of participant were given intensive theoretical and practical sessions in breast cancer and breast self exam.

The theoretical part of the program was presented in two sessions as lecture/ discussion followed by the second part which consisted of two subsequent reinforcement sessions for practice (demonstration and redemonstration) using breast modules and the students practice BSE on the modules and themselves under supervision of the researchers. The third methodology was the distribution of BSE content, which involved self explanatory picture illustrating the positions and procedures of BSE. The program content was lectures about epidemiology of breast cancer and early detection, risk factors of breast cancer, breast cancer presentation, screening program and steps of breast self examination (BSE). The education was given by power point visual presentation and practicing BSE.

Evaluation of the program was completed using the three aforementioned tools .The participants were assessed after 2 months for their knowledge, information retentions, and their skill in BSE through post-test questionnaire. The completion of the instruments took an average of 15 minutes

Statistical analysis:

The correct responses of the pre and post tests were summed up to get the total knowledge, practices score for each participant. Satisfactory knowledge and adequate practices considered if they achieved 70% from the total answers or examination required. For the content validity of the questionnaire, three staff of obstetrics and gynecological, community health nursing and public health medicine was invited to review the questionnaire. The experts stated that the items were relevant and adequate. The data were analyzed using statistical package for social sciences (SPSS version 15). Descriptive and inferential statistical tests were used. The results of pre and post test were compared and tested Also, the Paired t test was applied, all with significance at 0.05.

Limitations

The most limitation of the study is: Short of time regarding university year 2013-2014 due to some political conflicts within the Egyptian Universities especially Al Azhar University.

Results

Table1: Regarding the socio-demographic of studied group, this table clarifies that the age of the respondents ranged from 17years to 20 years, about two third (72.6%) of them had uneducated fathers and (58.4 %) had educated mothers and (75.2%) had housewife. The most of them (97.3%) lived in rural areas. This table also shows that 5.3% of respondents had family history of breast cancer.

The commonest source of information about BSE was health professional and teachers (62.8 %), while only 15.9% was source of their knowledge from others (newspaper, books, magazine, and relatives), but 9.7 % did not gain any information about BSE (Figure 1).

Regarding the referred person when discover breast problems throughout program, figure 3 clarifies that 94.7% of respondents at pre program did not notice any breast problem but after program 88.5% will go to doctors. Also this figure demonstrates highly statistically significant between pre and post program for referred person when discover any breast problem.

Table 2 indicates that few (10.6%55) of students had satisfactory level of knowledge in pre-program; while the majority of them (78.8%) have a satisfactory level of knowledge about BSE at post program with statistically significant difference. Also their performance level at pre program 5.3% was adequate but after program 67.3% was adequate with statistical different between pre-post education program ($p= 0.001$).

Table 3 shows that the effect of education program on nursing students' health beliefs. In the subscales of health beliefs model, the difference between pre- and post-education was analyzed by t-test. The difference between the health belief subscales after the education was highly statistically significant ($p=0.000$).

Discussion

Breast cancer is an urgent public health problem, and is currently the most prevalent cancer among women in both the developed and developing countries (WHO, 2014). A key part of the fight against breast cancer is early detection, if treated in time the patient's life can be saved. Breast self examination is one of the screening belief techniques for early detection of breast cancer (American Cancer Society (2014). In this study, the aim was to determine the effect of breast self-examination (BSE) education given to the nursing students on their knowledge and practice and beliefs about BSE.

Breast self-examination teaching carried out on a sample of adolescent nursing students with age ranging between 17-20 years in health institute in Cairo. It found that more than two third of them (67.3%) have age at seventeen, this similar to a study done in Qena on adolescents blind girls (Mohamed, et al., 2013).

Our results found that only 5.3% of respondents had family history of breast cancer. The results of this study are similar to the reports of Yucel, et al., (2014) who found that 91.5% of the participant nurses didn't mention breast cancer in the family history, 81.3% had no complaints concerning their breasts in Turkey. It was notice that the percentage of nursing students who perform BSE (5.3%) was the same of they have family history of breast cancer, this might be explained that, the students who had a family history of breast cancer can feel themselves closer to screening practices to prevent themselves from breast cancer. Furthermore, their having more knowledge about breast cancer during treatment process of their relatives may be one of the reasons for positive effect.

The commonest source of information about BSE was health professionals and teachers (62.8 %), While only 15.9% was source of their knowledge from (newspaper, books, magazine, and relatives), and 9.7 % did not gain any information about BSE. This finding was in contrast to the study of Yoo et al. (2012) who found that the majority of women who knew about BSE in nationwide survey, mentioned that they had heard about BSE on TV, on the radio, and in the newspapers, and only 17.2% of the women who were aware of BSE received the information through physicians or nurses. Another study in 2008 found that more than half of the students (62.1%) reported that they had not heard about BSE, Health professionals were mentioned as a source of information by 44.4% of the sample and media were identified as the main source of information on breast cancer by 48.6% of the participants in Turkey (Karayurt et al., 2009). Which disagrees with our study, study done in Ilorin university, Nigeria revealed that common source of knowledge was media 68.1% followed by health worker and friends 14.6%, 10.7% respectively (Salaudeen et al., 2009). The Turkey study reported that media was the main source of knowledge about BSE 48.6%, then health professionals 44.4% and books or journals 38.9% (Özgül, et al., 2008). Nearly to our results, Isara and Ojedokun (2011) found that 30.9% of students had heard of BSE with their sources of information from heath professional in Abuja-Nigeria. On the contrary to our results, all above studies stated the common source of information about BSE among studied group was media. This might be the most nursing students stayed in university campus away from their home, so the common source of any health knowledge is health professional or their teachers

Concerning the referred person when discover breast problems throughout program, the results of these study found that 94.7% of respondents at pre program did not notice any breast problem. After BSE education program nearly 88.5% stated that they will go to the doctor if they detect any change in breast by BSE technique. This finding is consistent with other studies conducted among nursing students in Qena, Egypt (Mohamed, et al., 2013).

The knowledge of nursing students in this study improved after the BSE teaching program with significance difference ($p= 0.001$); 10.6% of students had satisfactory level of knowledge in pre-program. This may be explained that the participants were young (with age range 17-20) and all singular. Similarly, Beydağ & Yürüğen, (2010) stated that it is such a disappointing finding that more than half of the young females in their 20s and having college education have no knowledge about BSE, which is the most important diagnostic tool for the early diagnosis of breast cancer. The knowledge level increased to 78.8% post program, which indicates the effectiveness of the education program on their knowledge, which fed them with right and satisfactory information. With breast self-examination, nurses learn to explore natural building to her breasts; allowing them to identify any mass or differences in their breasts that may appear and hence early detection of breast cancer. In another training program for a group of blinding girls, Qena, Egypt; the results run in the same line as our results in improvement of knowledge of BSE after the training program with significance difference before and after the

program (P value = .01). Knowledge increased from 10.8% pre-program to 78.4% post program (Mohamed, et al., 2013). The results of the similar study demonstrated that in the comparison of the knowledge level score averages of the students in the pre- and post-BSE education periods which are shown a statistically significant difference was determined between the pre- and post-education score averages of the students ($p<0.05$) (Beydag & Yurugen, 2010). It is importance of better education to student nurses, who have a key role in teaching preventive health behavior including BSE to society and other university students as colleagues (Yucel et al., 2014).

This study shows that level of practice of breast self- examination among nurse students is unacceptably low; their performance level at pre program was 5.3%. The findings we obtained from the study are consistent with the other research. Aghamolaei, et al., (2011) showed that prior to the intervention in Iran, just about 7% of participant performed breast self examination regularly, which is much lower than what reported by developed countries. In the previous studies, done one 538 nursing students in a single Higher Technological Educational Institute in Greece by Lavdaniti, (2014) who found that nursing students had inadequate practice about breast-self examination. After education program 67.3% was adequate with statistical different between pre-post education program ($p= 0.001$). The results of this study are nearly to the reports of Akhtari- Zavare, et al., (2013) found that 36.7% of Malaysia female undergraduate students practice BSE. Ebril and Bolukbas (2014) found that their study done on 189 nursing and midwifery students in Turkey found that 70% of nursing students performed BSE, but only 21.8% of them did on a regular basis. This result supported by the results of study done on 284 female nursing students in Turkey by Yucel, et al., (2014) who found that 70.8% stated that they knew how to perform BSE.

In this study, the HBM mean scores were increased in all components (perceived susceptibility, severity, benefits and barriers) after educational intervention. These results are consistent with previous study that was conducted among female students in Iran (Moodi, et al., (2011). in the same line, Aghamolaei, et al., (2011) reported that the intervention program of this study which was grounded in the health belief model could significantly increase the perceived susceptibility to breast cancer and cleared the seriousness of breast cancer for participants. Furthermore, this program could decrease studied participants' perceived barriers to breast self examination and increased their perceived self efficacy to perform this behavior. However, perceived benefits did not statistically increase after the intervention. On the contrary, Karayurt, et al., (2009) stated that there were no significant differences in the mean scores for any of the six subscales of CHBMS between the participants in Turkey who were assigned into education either at baseline or six months after education. At the end of the study, it has been shown that the health education program based on HBM effective in promoting knowledge and practice of breast self examination within the nursing students. This result supported by the findings of study done in Iran by Aghamolaei, et al., (2011).

Conclusion

The participants in the study showed more deficiency on BSE and screening knowledge, and poor practice of BSE among nursing students at pre education, this may be due to lack of exposure to clinical experiences of the nursing students as found in others counters. Also, the results of this study highlight the positive impact of the educational training on nursing students' breast cancer and BSE knowledge, practice and health beliefs (sub-items scores), which there was statistically significant differences were found between students' pretest and posttest BSE Knowledge, practice and beliefs. Such programs could be instrumental in increasing nursing students' perception of susceptibility may serve to improve not only their own health status but may empower them to teach women about the importance of early diagnosis, and to seek early treatment. Hence, this may lead to better chance for survival of Egyptian women.

Recommendations

- It is important to keep nursing students informed with any health issues that are not covered in detail in their course. The implication of this study is to emphasize the need to teach nursing students breast cancer awareness and early detection of breast cancer in their undergraduate courses.
- Provision of regular interventions is necessary to increase and build up the confidence and skills of nursing students in teaching preventive health behaviors including BSE to society and other students as colleagues.
- Further research is recommended using a larger sample size with students in other faculties and university, including the cost effectiveness of designing and implementing preventive care.
- Healthy and positive attitude about breast self examination should be encouraged in girls in the early school age rather than teaching it when grown up.
- All channels of the national mass media could efficiently be utilized to cultivate a healthy positive attitude toward BSE.

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Table (1) Socio-demographic Characteristics of student nurse

| Variable | No=113 | % |
|--|--------|------|
| <u>Age</u> | | |
| 17- | 76 | 67.3 |
| 19-20 | 37 | 32.7 |
| <u>Father education</u> | | |
| Educated | 31 | 27.4 |
| uneducated | 82 | 72.6 |
| <u>Mother education</u> | | |
| Educated | 66 | 58.4 |
| uneducated | 47 | 41.6 |
| <u>Mother job</u> | | |
| House wife | 85 | 75.2 |
| working | 28 | 24.8 |
| <u>Residence</u> | | |
| Urban | 3 | 2.7 |
| Rural | 110 | 97.3 |
| <u>Family history of breast cancer</u> | | |
| yes | 6 | 5.3 |
| no | 107 | 94.7 |

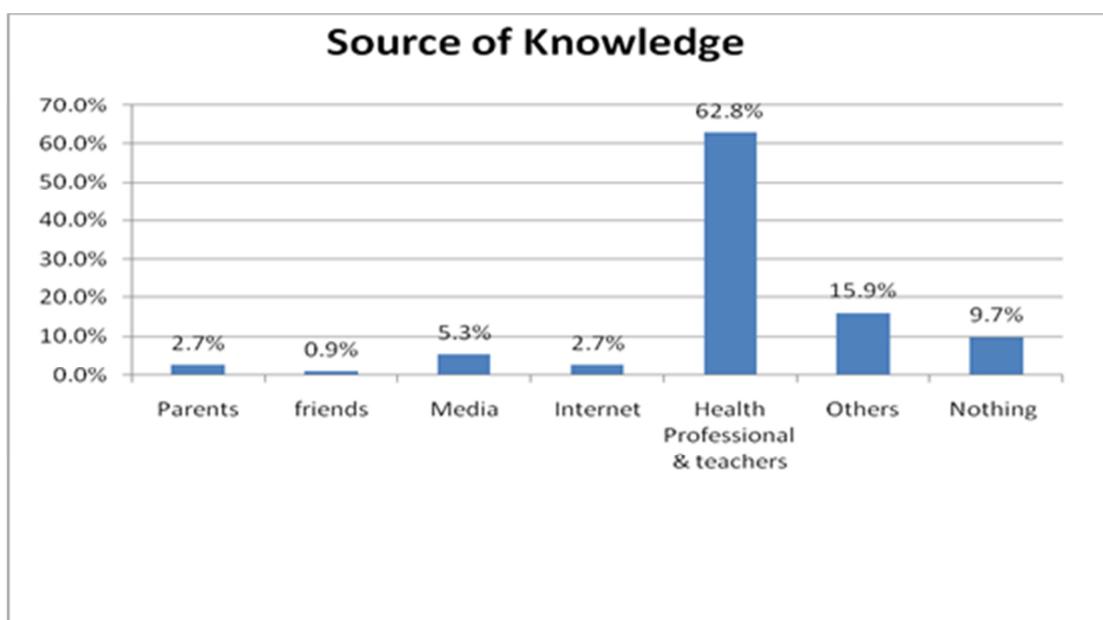


Figure (1) Source of knowledge about breast self exam

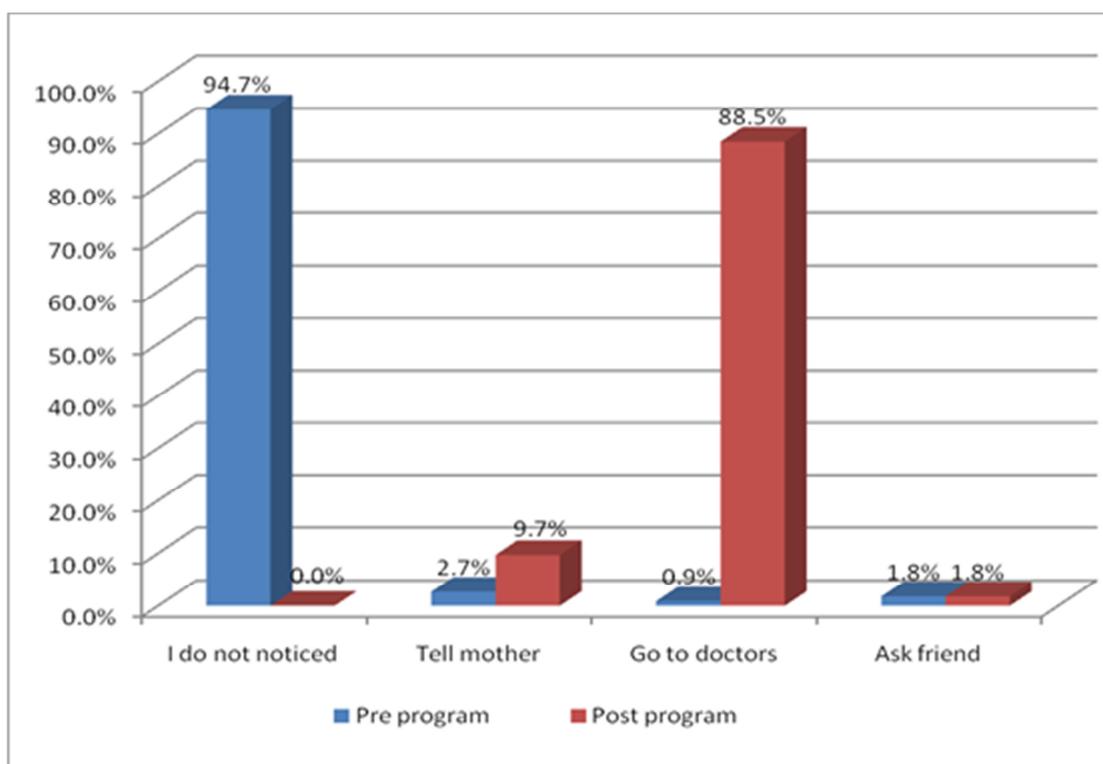


Figure 2: The preferred person (who is asked if discover breast problem)

Table 2: Knowledge and performance of breast self exam at pre and post program

| item | Pre program | Post program | p-value |
|-------------------|-------------|--------------|---------|
| Knowledge level | | | |
| Satisfactory | 11 (10.6 %) | 89 (78.8%) | 0.001 |
| Unsatisfactory | 101 (89.4%) | 24 (21.2%) | |
| Performance level | | | |
| Adequate | 6 (5.3%) | 76 (67.3 %) | 0.001 |
| Inadequate | 107 (94.6%) | 37 (32.7 %) | |

Table 3: Subscales scores for health belief models scales intended for BSE of nurses' pre and post program

| Subscales | No of item | Range of score | M \pm SD | | T- test | p-value |
|--------------------------|------------|----------------|-----------------|------------------|---------|---------|
| | | | Pre | Post | | |
| Perceived Susceptibility | 6 | 14 | 9.77 \pm 1.35 | 24.32 \pm 3.63 | 76.74 | 0.000 |
| Perceived Severity | 12 | 31 | 9.83 \pm 0.74 | 52.53 \pm 6.02 | 1.4 | 0.000 |
| Perceived Benefits | 11 | 14 | 8.92 \pm 1.83 | 52.76 \pm 2.48 | 51.59 | 0.000 |
| Perceived Barriers | 14 | 24 | 10.56 \pm 1.4 | 49.03 \pm 5.31 | 80.19 | 0.000 |
| Cues to Action | 8 | 19 | 8.38 \pm 2.26 | 37.66 \pm 3.32 | 39.29 | 0.000 |
| Self efficacy | 12 | 30 | 9.61 \pm 1.33 | 47.88 \pm 7.84 | 76.66 | 0.000 |

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